

State of California
AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS
FOR PROPOSED RULEMAKING

**PUBLIC HEARING TO CONSIDER AMENDMENTS TO
REGULATIONS FOR THE AVAILABILITY OF CALIFORNIA MOTOR
VEHICLE SERVICE INFORMATION**

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Attachment – Proposed Amendments to the California Regulations to Title 13, California Code of Regulations, Chapter 1 Motor Vehicle Pollution Control Devices, Article 2 Approval of Motor Vehicle Pollution Control Devices (New Vehicles); Section 1969, Motor Vehicle Service Information – 1994 and Subsequent Model Passenger Cars, Light-duty Trucks, Medium-Duty Vehicles and Heavy-Duty Vehicles.

EXECUTIVE SUMMARY

The Air Resources Board (ARB or Board) staff is proposing to amend the regulation that requires the availability of emission-related service information for 1994 and later passenger cars, light-duty trucks, and medium-duty vehicles equipped with second generation On-Board Diagnostic (OBD) systems. This proposal is in accordance with the requirements of Senate Bill 1146 (SB 1146), which is principally codified at Health and Safety Code Section 43105.5. In December 2001, the Board approved for adoption an initial regulation implementing the provisions of SB 1146 as they apply to manufacturers of the above-identified vehicle classifications (title 13, California Code of Regulations section 1969 and title 17, California Code of Regulations sections 60060.1 through 60060.34). The existing service information regulation became effective on March 30, 2003.

Staff is now proposing that the regulation be broadened to include manufacturers of new heavy-duty engines and transmissions as their products become subject to OBD requirements that are separately under development by ARB staff. The staff has determined that the needs of the heavy-duty aftermarket industry for emissions-related service information and tools are substantially the same as for the aftermarket segments covered by the existing regulation. Access to comprehensive emission-related information and tools will allow the aftermarket service industry to remain competitive in the marketplace with dealership service centers and manufacturers of original equipment parts.

Under staff's proposal, most of the provisions of the regulation that now apply to light- and medium-duty vehicles would also apply to heavy-duty vehicles. The regulation would require text-based service information, such as service manuals, technical service bulletins, and training materials, to be made available for purchase over the Internet at fair, reasonable, and nondiscriminatory prices. It would also require that heavy-duty manufacturers offer for sale the same emission-related diagnostic tools that are used by dealership technicians, along with information necessary for the same diagnostic capabilities to be designed into generic aftermarket tools. The staff's proposal contains necessary adjustments to reflect differences between the light-duty and heavy-duty vehicle manufacturing and service industries.

The ARB staff is also providing an update on the issue of access to information needed to remanufacture on-board computers designed for vehicles equipped with "immobilizer" passive anti-theft systems. In approving the regulation in December 2001, the Board decided against adopting regulatory language that would require motor vehicle manufacturers to make immobilizer information available to on-board computer remanufacturers. However, recognizing the importance of lower-cost, replacement on-board computers, the Board directed the staff to work with both industries towards finding a solution that would provide remanufacturers with the information or equipment necessary to effectively bench test these rebuilt computers without compromising motor vehicle security.

After considerable discussion with manufacturer and aftermarket stakeholders, it appears that a viable solution to the computer remanufacturing issue is available through the use of “generic” re-initialization technology required by the recently amended federal service information requirements. The ARB staff is proposing a similar requirement to ensure that the basis for reasonably priced bench testing of remanufactured on-board computers continues to be in place.

Other minor modifications are also being proposed to harmonize with federal service information requirements and to assist with the implementation and enforcement of the overall regulation.

Except for heavy-duty manufacturers that would become subject to the regulation under the staff’s proposal, the amendments to the regulation should not impact compliance costs. The staff has estimated that heavy-duty manufacturers’ start-up costs for the development of a compliant heavy-duty website should be no more than \$500,000. Annual maintenance costs are estimated to be approximately \$225,000 or less. Affected manufacturers would be permitted by the regulation to set fair, reasonable, and non-discriminatory prices for the tools and information that must be made available under the regulation, thereby offsetting some or all of the compliance costs.

State of California
AIR RESOURCES BOARD

**Staff Report: Initial Statement of Reasons
For Proposed Rulemaking**

PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE CALIFORNIA
REGULATIONS FOR THE AVAILABILITY OF MOTOR VEHICLE SERVICE
INFORMATION

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I. Introduction

Pursuant to the directives of Senate Bill (SB) 1146 (principally codified at Health and Safety Code Section 43105.5), the Air Resources Board (ARB or Board) adopted the California Motor Vehicle Service Information Regulation on December 13, 2001. The regulation ensures that independent service facilities and aftermarket part companies have access to information and tools necessary to diagnose and repair emission-related malfunctions and produce emission-related replacement parts. The regulation currently applies to manufacturers of 1994 model year and later passenger cars, light-duty trucks, and medium-duty vehicles equipped with second generation on-board diagnostic (OBD) systems. The regulation became effective on March 30, 2003.

In adopting the regulation in 2001, the Board directed, in Resolution 01-05, that staff report back to it in two years with a status update on the regulation's implementation and on outstanding issues regarding the ability of the aftermarket industry to access "immobilizer" passive anti-theft system information. The status report follows in sections IV. and V.(A.) of this document. In addition, staff is proposing amendments to expand the regulation's applicability to heavy-duty vehicle engines and transmissions. Lastly, the staff is proposing additional minor amendments to the regulation to improve the clarity and effectiveness of the regulation and to ensure consistency with recently promulgated federal service information requirements.

II. Background

The use of sophisticated emission control devices has allowed motor vehicle manufacturers to meet stringent emission standards necessary for California's attainment of ambient air quality goals. However, continued compliance with these low emission levels depends on the proper operation of the emission control systems built into the vehicles. Emission-related malfunctions can cause vehicle emission levels to greatly exceed certification standards. Current light- and medium-

duty vehicles sold in California are equipped with diagnostic OBD systems (known as OBD that detect the occurrence of these malfunctions).

When a malfunction is detected, the “check engine” or “service engine soon” light illuminates on the vehicle’s instrument panel, and diagnostic information is stored in the on-board computer. Through the rapid identification and repair of emission-related problems, the lifetime emissions from motor vehicles can be minimized. However, because emission levels are not reduced until the vehicle is successfully repaired, it is critical that service technicians have access to the information and diagnostic tools necessary to effectively utilize OBD system information, and to carry out necessary repair work for identified problems. The availability of compatible aftermarket replacement parts is also important to the repair process. If there is not an adequate supply of needed replacement parts at reasonable prices, the repair of emission-related malfunctions may be postponed or carried out improperly.

III. Summary of Existing Regulation

Prior to the service information regulation, independent service facilities (i.e., those not directly affiliated with the vehicle manufacturers), did not always have access to dealership-quality information and tools. In response to concerns from aftermarket service facilities and parts manufacturers, SB 1146 was signed into law on September 30, 2000. The bill and the ARB’s regulation, as codified in title 13, California Code of Regulations (CCR), section 1969 and title 17, CCR, sections 60060.1 through 60060.34, currently address service information availability for 1994 model year and later passenger cars, light-duty trucks, and medium-duty vehicles equipped with OBD systems.

A. Service Information

Most emission-related service information needed by independent service facilities and aftermarket part manufacturers consists of text-based information routinely used to complete service and repairs on consumer vehicles. Such information includes, but is not limited to, service manuals, technical service bulletins, troubleshooting manuals, and training materials. The regulation requires manufacturers to make available all emission-related service information that is available to franchised dealerships. The regulation specifically requires that text-based service information, at a minimum, be made available directly via the Internet.

B. On-Board Diagnostic System Descriptions

The regulation requires motor vehicle manufacturers to make available for purchase general descriptions of the design and operation of OBD systems for 1996 and subsequent model year passenger cars, light-duty trucks, and medium-duty vehicles. These descriptions include the system’s monitored parameters, diagnostic trouble codes, enabling conditions, monitoring sequence, and malfunction thresholds. Motor vehicle manufacturers must also make available identification and scaling information necessary to understand and interpret data accessible to generic scan tools under “mode 6” of the Society of Automotive Engineers (SAE) standard

J1979. This information helps service technicians better understand the conditions under which malfunctions are indicated. It also provides aftermarket part manufacturers with information that can be used to better ensure that both add-on and replacement parts are compatible with OBD systems.

C. Diagnostic Tools and Reprogramming Equipment

The regulation requires manufacturers to offer for sale the same emission-related diagnostic tools that are provided to franchised dealerships. This ensures the availability of dealership-quality tools to the aftermarket and provides for improved diagnoses and repair of emission-related malfunctions. If a manufacturer's tool includes both emission-related and non-emission-related information and diagnostic capabilities, the manufacturer has the option to make available to the aftermarket a version with only emission-related diagnostic functions.

In addition to offering for sale diagnostic tools that are provided to dealerships, the regulation requires motor vehicle manufacturers to make available emission-related enhanced data stream information¹ and bi-directional control information² to aftermarket tool manufacturers. This information enables automotive diagnostic tool manufacturers to incorporate similar functionality into their "generic" tools.

D. Immobilizer Information

Motor vehicle manufacturers are required to make available to the service and repair industry initialization procedures used by dealerships for vehicles equipped with integrated anti-theft systems known as immobilizers. A manufacturer is required to provide such procedures when necessary for installation of on-board computers, or for repair or replacement of other emission-related parts. An exemption from full compliance with this requirement may be granted through the 2007 model year if the manufacturer demonstrates that it needs the additional time to make design changes to the immobilizer system in order to ensure that disclosure of the procedures would not compromise vehicle security. Only one manufacturer has requested an exemption thus far. An issue related to the release of additional immobilizer information to rebuilders of on-board computers has been a concern since the December 2001 hearing. Background on this matter, and the ARB's proposals regarding the issue are detailed later in this staff report.

¹ "Enhanced data stream information" is defined as data stream information that is specific for an original equipment manufacturer's brand of tools and equipment. Data stream information available to technicians through a diagnostic tool typically consists of real time data from sensors and the on-board computer regarding the operating conditions of the vehicle.

² "Bi-directional control information" typically consist of commands issued by a technician using a scan tool to override normal vehicle operation in order to activate a device or computer routine for diagnostic purposes.

E. Cost of Service Information

The regulation requires that all covered information and diagnostic tools be offered for sale at “fair, reasonable, and nondiscriminatory prices” in order to stimulate competition between franchised dealerships and the aftermarket, and to ensure equal access to service information and tools. Actual prices for service information and tools are not specified by the ARB in the regulation. Instead, the factors listed below are to be used to evaluate the appropriateness of manufacturer’s pricing policies:

- The net cost to the motor vehicle manufacturers’ franchised dealerships for similar information obtained from motor vehicle manufacturers after considering any discounts, rebates or other incentive programs;
- The cost to the motor vehicle manufacturer for preparing and distributing the information, excluding any research and development costs incurred in designing, implementing, upgrading or altering the onboard computer and its software or any other vehicle component. Amortized capital costs may be included;
- The price charged by other motor vehicle manufacturers for similar information;
- The price charged by the motor vehicle manufacturer for similar information immediately prior to January 1, 2000;
- The ability of an average covered person to afford the information;
- The means by which the information is distributed;
- The extent the information is used in general and by specific users, which includes the number of users, and the frequency, duration, and volume of use;
- Inflation; and,
- Any additional criteria or factors considered by the United States Environmental Protection Agency (U.S. EPA) for the determination of service information costs under federal regulations.

The ARB staff will consider all relevant regulatory factors in making any determination that a manufacturer’s set prices are not fair, reasonable, and non-discriminatory. Manufacturers must provide its pricing structures to the ARB, and periodic audits are conducted by the ARB to monitor manufacturer pricing policies.

F. Trade Secret Disclosure

The regulation contains provisions for manufacturers to withhold trade secret information that would otherwise have to be disclosed under the provisions of SB 1146. The regulation permits manufacturers to initially withhold information that it believes to be trade secret (as defined in the Uniform Trade Secret Act contained in title 5 of the California Civil Code). At the time information for vehicle models is made available, the motor vehicle manufacturer is required to identify on the website the information it has withheld as trade secret. Covered persons that believe the information is not a trade secret may request the motor vehicle manufacturer in

writing to make the information available. If resolution cannot be reached informally, the motor vehicle manufacturer would be required to petition the California superior court to obtain an exemption from disclosure.

G. Compliance Review Procedures

The regulation allows the ARB to review a motor vehicle manufacturer's compliance with these regulations by conducting periodic audits of motor vehicle manufacturer websites. A covered person may also request that the ARB conduct an audit. The ARB will conduct the audit if: (1) the request, on its face, establishes reasonable cause to believe that the manufacturer is in noncompliance with the regulation, and (2) the covered person has made reasonable efforts to resolve the matter informally with the manufacturer. In conducting audits, the ARB reviews all pertinent information provided by the covered person and the manufacturer. At the conclusion of the audit, the ARB will issue a written determination as to whether the motor vehicle manufacturer is in compliance with the statute and regulations.

If the ARB makes a determination that the motor vehicle manufacturer is not in compliance with the governing statute or regulation, a notice to comply will be issued to the motor vehicle manufacturer ordering it to remedy the non-compliance. The motor vehicle manufacturer has 30 days to either submit a compliance plan or request an administrative hearing to contest the notice. Any rejection of a manufacturer's compliance plan requires the Executive Officer to seek review of its determination by an administrative hearing officer.

H. Administrative Hearing Procedures

Health and Safety Code section 43105.5(f) requires the ARB to establish administrative hearing procedures for the review of Executive Officer determinations of non-compliance with the regulation. The hearing procedures for this purpose are provided in title 17, CCR, sections 60060.1 through 60060.34. After considering the record and arguments submitted by the parties, a hearing officer issues a written decision and order within 30 days. The hearing officer's decision is considered the final decision of the ARB, subject to review by the superior court.

I. Non-Compliance Penalties

The regulation authorizes the hearing officer to assess civil penalties against a manufacturer for continued noncompliance. Such penalties may be assessed if the manufacturer fails to come into compliance within 30 days from the date of a hearing officer's compliance order, or such later date that the hearing officer deems appropriate. The penalties can be as high as \$25,000 per violation per day that the violation continues.

IV. Status of Implementation

Currently, all major light- and medium-duty vehicle manufacturers have operational service information websites on the Internet. Most manufacturers offer time-based

subscriptions that range in length from 24 hours to a year. Eight manufacturers charge for service information per document, and two manufacturers are currently offering free access to emissions-related service information. Table 1 below contains a list of manufacturers' websites and access charges:

Table 1.
Service information Websites
(as of November 2003)

<u>Manufacturer</u>	<u>Website Address</u>	<u>Pricing</u>		
		<u>Short-Term</u>	<u>Month</u>	<u>Year</u>
Acura	https://www.serviceexpress.honda.com	\$20.00 (72 hr)	\$50.00	\$500.00
AM General*	http://www.amgeneralcorp.com	Documents Individually Priced		
Audi	http://erwin.audi.com	Documents Individually Priced		
BMW	http://www.bmwtechinfo.com	\$20.00 (24 hr)	\$300.00	\$2,500.00
Bentley*	http://www.bentleytechinfo.com	Documents Individually Priced		
Chrysler	http://www.techauthority.com	\$20.00 (24 hr)	\$200.00	N/A
Ferrari*	http://www.ferrariusa.com	Documents Individually Priced		
Ford	http://www.motorcraftservice.com	\$19.95 (72 hr)	\$299.95	\$2,499.95
General Motors	http://service.gm.com	\$20.00 (24 hr); \$45.00 (5 day)	\$150.00	\$1,200.00
Honda	https://www.serviceexpress.honda.com	\$20.00 (72 hr)	\$50.00	\$500.00
Hyundai	http://www.hmaservice.com	Free		
Infiniti	http://www.infinititechinfo.com	\$19.99 (24 hr)	\$299.98	\$2,499.98
Isuzu	http://www.isuzusource.com	\$20.00 (24 hr)	\$150.00	\$1,650.00
Jaguar	http://www.jaguartechinfo.com	\$20.00 (24 hr)	\$150.00	\$500.00
Kia	http://www.kiatechinfo.com	Free		
Lamborghini*	http://www.lamborghini.com	Documents Individually Priced		
Land Rover	http://www.landrovertechinfo.com	\$20.00 (24 hr)	\$150.00	\$500.00
Lexus	http://techinfo.lexus.com	\$10.00 (24 hr)	\$50.00	\$350.00
Mazda	http://www.mazdatechinfo.com	19.95 (24 hr), \$50.00 (72 hr)	\$900 (6 mo)	\$1,500.00
Maserati*	http://www.maseratiusa.com	Documents Individually Priced		
Mercedes-Benz	http://www.startekinfo.com	\$20.00 (24 hr)	\$300.00	\$2,500.00
Mini	http://www.minitechinfo.com	\$20.00 (24 hr)	\$300.00	\$2,500.00

<u>Manufacturer</u>	<u>Website Address</u>	<u>Pricing</u>		
		<u>Short-Term</u>	<u>Month</u>	<u>Year</u>
Mitsubishi	http://www.mitsubishitechinfo.com	\$19.95 (24 hr); \$99.95 (1 wk)	\$249.99; \$999.99 (6 mo)	\$1,499.95
Nissan	http://www.nissantechinfo.com	\$19.99 (24 hr)	\$299.98	\$2,499.98
Porsche	https://techinfo.porsche.com	\$110/document	N/A	\$5,200.00
Rolls-Royce*	http://www.rrtis.com	Documents Individually Priced		
Saab	http://www.saabtechinfo.com	\$10.00	\$75.00; \$180.00 (3 mo)	\$500.00
Subaru	http://techinfo.subaru.com	\$19.95 (72 hr)	\$299.95	\$2,499.95
Suzuki	http://www.suzukitechinfo.com	\$19.99 (24 hr)	\$99.99; \$299.99 (6 mo)	\$499.99
Toyota	http://techinfo.toyota.com	\$10.00 (24 hr)	\$50.00	\$350.00
Volkswagen	https://erwin.volkswagen.de	Documents Individually Priced		
Volvo	http://www.volvotechinfo.com	N/A	\$350.00	\$3,500.00

* Small volume manufacturer. Information is not required to be made available for online purchasing and viewing/downloading.

Overall, staff has found that the service information websites generally meet the requirements outlined in the regulation despite some minor startup problems. Thus far, the ARB staff has received only two complaints from covered persons regarding manufacturers' compliance with the regulation. The first involved the pricing of a motor vehicle manufacturer's service information and the other was about the inability of an independent service facility to purchase a manufacturer's enhanced diagnostic tool. Both matters were resolved informally without the need to pursue enforcement procedures outlined in the regulation.

V. Proposed Amendments

This section of the report describes the staff's proposed amendments to California's service information requirements. The staff's preliminary proposals were presented in ARB Mail-Out MSO #2003-03, and discussed at a public workshop held on August 14, 2003.

A. Immobilizers

ARB staff has worked closely with both motor vehicle manufacturers and representatives from the aftermarket towards resolving an issue regarding access to immobilizer information that was identified at the 2001 Board hearing.

1. Background

Most vehicle manufacturers currently install passive anti-theft devices, known as immobilizers, on at least a portion of their product offerings. These devices disable engine functions necessary for vehicle operation (e.g., fuel injection, or the ignition system) unless a transmitting device incorporated into the key sends the correct password to a receiver on the vehicle. If the vehicle's on-board computer needs to be replaced, the immobilizer system typically needs to be reinitialized so that the computer will recognize the code transmitted by the key. Other emission-related repairs may also require reinitialization of the immobilizer system.

Pursuant to Health and Safety Code section 43105.5 (a)(6), the service information regulation requires manufacturers to make their initialization procedures available to independent service technicians so that they will not be precluded from carrying out emission-related repair procedures that require immobilizer initialization (title 13, CCR, section 1969 (d)(3)). The aftermarket, however, believes that the regulation, as presently written, does not go far enough. They believe that remanufacturers of on-board computers (ECUs) are also entitled to special information and/or tools needed to temporarily bypass the ECU's immobilizer logic so that all on-board computer functions can be tested on a workbench after the remanufacturing process. Without such capabilities, the remanufacturers assert that they would be unable to continue to supply lower-cost, replacement on-board computers. Therefore, the only alternative for consumers would be new, more expensive replacement units available through manufacturers' dealerships.

Vehicle manufacturers disagree, contending that SB 1146 does not provide for special information to be created and made available to ECU remanufacturers. They assert that such a requirement could result in the release of information that would jeopardize the effectiveness of immobilizer systems in deterring vehicle theft.³ They further argue that the development of the specific information and tools desired by the remanufacturers would be costly and burdensome.

At the 2001 hearing, the staff's proposal to the Board did not include the special information requirements sought by the aftermarket remanufacturers. The staff concluded that the language of Health and Safety Code section 43105.5, when read together with the legislative history of SB 1146, did not require vehicle manufacturers to provide special initialization information necessary for bench testing remanufactured computers. After considerable discussion at the hearing, the Board adopted staff's proposed regulations without the requirement sought by remanufacturers. However, the Board expressed concerns about the continued availability of lower cost replacement ECUs. Consequently, the Board directed ARB staff to work with aftermarket and vehicle manufacturer stakeholders to determine if

³ The effectiveness of immobilizer designs is one criterion by which vehicle insurance costs are established in Europe. Motor vehicle manufacturers have stated that they use similar or identical immobilizer designs in the U.S. and Europe. Therefore, manufacturers argue that any release of information that could jeopardize immobilizer system effectiveness could translate into higher insurance costs for their vehicles overseas.

a feasible solution exists that would better facilitate bench testing of remanufactured on-board computers while protecting the security of immobilizer designs.

2. Discussion of Potential Solutions

Black Boxes, and Test Calibrations

Since the 2001 Board hearing, the ARB staff has engaged in continuing discussions and meetings with representatives from the on-board computer remanufacturing industry and motor vehicle manufacturers. Initial discussions focused on concepts proposed by computer remanufacturers. Specifically, the remanufacturers proposed that they be provided with “black box” devices that could be used on a test bench to disable immobilizer logic without providing the user of the device with any proprietary information on how the immobilizer works. Another concept discussed would be for vehicle manufacturers to develop special computer software that could be installed into remanufactured computers for testing purposes. The software would bypass immobilizer logic to allow for bench testing of the computer, but its parameters would be calibrated in a way that would keep the engine from operating reasonably if the computer was installed in a vehicle with the test software loaded. Vehicle manufacturers countered that black boxes and test calibrations would be expensive and burdensome to develop, and that they do not address concerns about reducing the effectiveness of immobilizer systems in-use.⁴

Potential solutions similar to the test calibration concept have also been discussed for application to future model year vehicles. These solutions would require manufacturers to develop special immobilizer-related subroutines into production release software that would disable the immobilizer’s functions under very narrow operating conditions or in response to a command from a diagnostic scan tool. Manufacturers agree that such strategies are technically feasible and that focusing on future model year vehicles would reduce costs; however, they remain concerned that costs to develop and maintain these subroutines would be significant. They are also concerned, once again, that the subroutines may be exploited in the field to reduce the anti-theft effectiveness of their immobilizer strategies.

Manufacturer-Authored Bench Test Procedures

Vehicle manufacturers have offered a solution that is based on the procedures the service industry uses, which are already available under the regulation to initialize the immobilizer system when an ECU is replaced or when additional keys are made for a vehicle. The manufacturers would provide instructions to the ECU remanufacturers on how to set up a test bench by connecting together a vehicle’s critical immobilizer-related devices. Such a setup would typically include the receiver for the key’s signal, the ECU, the anti-theft

⁴ These concepts were presented to the Board in more detail in a memorandum from the Executive Officer, dated November 13, 2002, “California Motor Vehicle Service Information Rulemaking Status (Agenda Item No. 01-10-1): Immobilizers”

module (if separate from the ECU), the manufacturer's diagnostic scan tool, and necessary wiring between the devices. With the test bench, a remanufacturer would be able to initialize the immobilizer system in the same way a service technician would when making vehicle repairs.

ECU remanufacturers have two related concerns regarding the manufacturers' proposal. First, some manufacturers' immobilizer initialization procedures incorporate a waiting period of up to 30 minutes to make use of the procedure to steal a car impractical. Remanufacturers say the delay greatly reduces the volume of computers that can be tested on the bench, restricting their ability to carry out their business. The impact of the delay can be avoided by setting up multiple test benches that would work in parallel. However, remanufacturers say their second concern, the cost of creating a test bench, makes the idea of setting up multiple benches economically infeasible.

The primary cost associated with the test bench setup is the need for a manufacturer's scan tool, which can often be in excess of \$5,000 each. However, a requirement recently finalized by the U.S. EPA with respect to federal service information rules will eliminate the need for expensive dealer tools. The federal requirement (Title 40, Code of Federal Regulations, Part 86, section 86.096.38(g)(6)) requires vehicle manufacturers to develop service procedures for immobilizer initialization that do not require the use of manufacturer scan tools or other special tools. Instead, the manufacturers are to rely on generic aftermarket tool capabilities, the SAE J2534 "pass through" reprogramming platform⁵, or inexpensive manufacturer specific data cables. While the federal provision was not adopted for the benefit ECU remanufacturers, they will be able to take advantage of generic tools that vehicle manufacturers will be required to provide. This should enable the ECU remanufacturers to perform multiple bench tests that facilitate remanufacturing and testing of computers in reasonable volumes and at reasonable cost.

The U.S. EPA requirement applies to 1996 and later model year vehicles that use immobilizers. Like the ARB's service information regulation, the federal rulemaking provides for an exemption through the 2007 model year for manufacturers that can demonstrate that development of a immobilizer initialization procedure based on common tools will increase the chances of vehicle theft. To date, the U.S. EPA has received four exemption requests. These four manufacturers account for only approximately 16 percent of light- and medium-duty vehicle sales in California. Therefore, in addition to current and future model year vehicles, the generic initialization concept can be used for a wide range of existing vehicle models.

⁵ Title 13, CCR, Section 1969(f)(3)

3. Summary and Proposals

At this time, staff believes that manufacturer bench test initialization procedures using commonly available tools appears to offer a reasonably priced and acceptably practical method to facilitate bench testing of remanufactured computers. The staff believes that refinements to such procedures and the tools needed to carry them out will likely occur over time, further reducing associated costs and resources. The staff also believes that other and possibly more efficient solutions to this issue may be reached through continued cooperation between vehicle manufacturers and on-board computer remanufacturers.

The staff's proposed regulatory amendments include regulatory language similar to the federal requirements discussed above to further ensure the availability of common tools to carry out immobilizer initialization (title 13, CCR, section 1969(d)(3)). Such tools are key to reducing the cost and burden of bench test procedures based on immobilizer-related vehicle repair procedures. The tools will also help to minimize immobilizer-related costs within the vehicle service industry.

B. Heavy-Duty Engine/Vehicle Applicability

1. Background

In October 2001, the ARB adopted new emission standards for on-road heavy-duty engines and vehicles⁶ that will reduce oxides of nitrogen and particulate matter by 90% compared to 2004 emission standards. Compliance with the 2007 standards will require manufacturers to implement sophisticated emission controls on new engines including aftertreatment-based technologies such as particulate filters and lean oxides of nitrogen (NOx) catalysts. Manufacturers will also be required to implement crankcase filtering/ventilation technologies.

Similar to the light-duty, gasoline-powered fleet in California, achievement of maximum in-use reductions from these emission control technologies will depend on their continued proper performance throughout the actual life of the engines. The ARB staff is currently in the process of developing separate OBD requirements for heavy-duty vehicles meeting these stringent standards to ensure that emission-related malfunctions are properly identified and repaired. A proposed rulemaking is expected to occur in 2004.

2. Need for Service Information Access

With the coming reliance on advanced emission controls and on-board diagnostic systems, the need for accurate and complete emissions-related service information, and access to adequate diagnostic tools has become more critical. To address this need and the requirements of Health and Safety Code section 43105.5,

⁶ Pursuant to title 13, CCR, section 1900(a)(6), heavy-duty vehicles are defined as motor vehicles with a gross vehicle weight rating (GVWR) greater than 14,000 pounds.

the ARB staff is proposing that California's service information requirements be amended to include heavy-duty, OBD-equipped engines and transmissions used with such engines.

ARB staff estimates based on available Department of Motor Vehicles data that approximately 520,000 heavy-duty trucks are registered in California. Federal statistics indicate that only about 11 percent of general heavy-duty truck maintenance and about 24 percent of major overhauls are performed at manufacturers' dealerships. Independent garages and fleet maintenance facilities conduct the majority of such repair work.⁷ Therefore, although heavy-duty vehicles make up only 2 to 3 percent of California's on-road vehicle fleet, hundreds of thousands of heavy-duty vehicles rely on service providers not affiliated with dealerships.

Independent heavy-duty service industry stakeholders have indicated that access to service and parts information electronically, and specifically over the Internet, is important to facilitate efficient heavy-duty vehicle repair work. The American Trucking Association's Technology and Maintenance Council (TMC) conducted a survey in which 86 percent of respondents indicated that technicians spent too much time trying to find service and parts information. Nearly 90 percent responded that a single source of on-line service and parts information would be an important improvement to their service repair work.

Input received by ARB staff during its August 14, 2003, public workshop indicates that heavy-duty engine and transmission manufacturers typically make service information available in hard-copy and/or electronic formats to independent service providers. Further, with a few exceptions, information regarding diagnostic tool functionality is also shared on a wide scale. Expanding the applicability of California's service information requirements to these vehicles would ensure that emissions-related information and tools are available for all California trucks.

3. Authority

The directives of the Health and Safety Code, and specifically SB 1146, require that the provisions of title 13, CCR, section 1969 be broadened to include OBD-equipped, heavy-duty vehicles. Health and Safety Code Section 43105.5(a) provides that the service information regulation apply to "all 1994 and later model-year motor vehicles equipped with on board diagnostic systems...and certified in accordance with the test procedures adopted [by the ARB]." While SB 1146 refers only to "motor vehicles" and "motor vehicle manufacturers," and does not reference "engines" or "engine manufacturers," the engine manufacturer is the party primarily responsible for equipping a manufactured vehicle with an OBD system and for certifying the engine and OBD system with the ARB. Being the certifying manufacturer of the vehicle's engine, engine manufacturers develop and control most emissions-related service information and tools used to maintain and repair heavy-duty vehicles.

⁷ United States Census Bureau: "1997 Economic Census Vehicle Inventory and Use Survey."

The purpose and intent of SB 1146 is to ensure the availability of service information and tools to the aftermarket service and parts industry for the proper maintenance and repair of OBD-equipped vehicles at competitive and reasonable prices. It is unquestionable that the sophistication of OBD systems – whether incorporated as part of a light, medium, or heavy-duty vehicle – and their impact on vehicle servicing and aftermarket parts was the catalyst for the widespread and strong support of SB 1146 from the automotive aftermarket. Moreover, the service information rule as initially adopted in 2001 applies to both light- and medium-duty vehicles, the latter of which includes several engine-certified vehicles. At that time, engine manufacturers never objected to the inclusion of such engine-certified vehicles in the service information regulation.

Beyond the explicit authority set forth in SB 1146, Health and Safety Code sections 43000.5(d), 43018(a), and 43700(d) direct the ARB to obtain maximum emission reductions from heavy-duty vehicles at the earliest practicable date. These provisions specifically recognize the unique emissions contribution of heavy-duty vehicles to the state's air quality problem. Providing necessary information and tools to independent heavy-duty vehicle service facilities will enable California-certified, heavy-duty vehicles to be better maintained and capable of continuing to meet the increasingly stringent certification emission standards in-use. This will help ensure that such emission reductions are indeed being achieved and maintained.

4. Differences in the Heavy-Duty Industry

Staff recognizes that differences do clearly exist in how most heavy-duty vehicles are constructed and serviced as compared to light- and medium-duty vehicles. Engine and transmission manufacturers have commented that these differences need to be taken into account in attempting to apply the current service information requirements to heavy-duty vehicles.

As compared to the light-duty motor vehicle industry, the heavy-duty industry is mostly non-integrated. This means that separate manufacturers typically produce the engine, transmission, and chassis of a vehicle. Non-integration exists primarily because the completed vehicle is typically produced in response to owner/operator specifications and preferences. Because of this lower level of integration, heavy-duty vehicles, in contrast to light-duty cars and trucks, are more often serviced by repair facilities that specialize in various subparts of the truck (engine shops, transmission shops, etc.).

The lack of integration also means that a given engine model will ultimately be part of many different engine, transmission, and chassis combinations. Heavy-duty manufacturers have stated that diagnostic tool designs differ significantly from tools produced for light-duty vehicles as a result of this diversity. Specifically, the tools provide a wide array of user selectable options that permit technicians to optimize truck operation based on factors such as the engine and transmission combination, axle ratios, and wheel sizes. It is important for service technicians to

understand how to properly utilize this flexibility. The manufacturers state that improper selection of configuration options can degrade truck performance to the point where on-road safety is at issue. For this reason, engine and transmission manufacturers have told the ARB staff that special training is considered essential for technicians using heavy-duty vehicle diagnostic equipment. Most manufacturers currently require service providers to complete such training before they will sell them their diagnostic tools. Lastly, the industry standards by which the tools and reprogramming equipment communicate with heavy-duty vehicles are also different from those developed for light-duty vehicles.

5. Proposals for Inclusion of Heavy-Duty Vehicles

The ARB staff is proposing to expand the applicability of title 13, CCR, section 1969 to include heavy-duty engine, vehicle, and transmission manufacturers. Implementation of the requirements would not be mandatory until such time that heavy-duty engines are certified to meet OBD requirements. OBD requirements for heavy-duty vehicles are currently under consideration. Although the ARB's proposals are still in the development phase, it is not expected they will be implemented prior to the 2007 model year.

The scope of the proposed service information regulation as it applies to heavy-duty vehicles is limited to emissions-related information and tools. Engine manufacturers would be responsible for complying with the bulk of the regulation, providing access to text-based service information, OBD descriptions, reprogramming information, and diagnostic tools. Transmission manufacturers would be responsible only for information and tools that deal with OBD-related transmission components and subsystems (e.g., transmission shift solenoids or transmission speed sensors).

With respect to diagnostic tools and reprogramming equipment, the staff's proposal for heavy-duty manufacturers is largely similar to the current requirements for light- and medium-duty vehicles. That is, the manufacturers would be required to make available for sale the diagnostic tools and equipment that they provide to their dealerships, and they would also be required to provide aftermarket tool and equipment companies with data stream and bi-directional control information so that companies will be able to develop the same functionality into their own tools. In recognition of manufacturers' concerns regarding the impact of potential misuse of such tools and equipment, the staff is proposing regulatory language that would permit heavy-duty engine and transmission manufacturers to require certain terms be met before its tools, equipment, and data stream and bi-directional control information can be purchased. Prior to the sale of enhanced tools and equipment to covered persons, heavy-duty manufacturers may require that they participate in training on use of its tools and equipment, comparable to the training programs the manufacturer may now offer to its authorized service networks. As a condition of purchase of enhanced data stream and bi-directional control information, engine and transmission manufacturers may also require that aftermarket tool and equipment manufacturers provide mandatory training to ultimate purchasers of the tools or equipment that use the manufacturer's

information. Such training may include instruction on the proper handling of the tool and equipment as it applies to the engine or transmission at issue.

In order to minimize costs for equipment necessary to reprogram on-board computers, the ARB's service information regulation requires, for light- and medium-duty vehicles, that manufacturers comply with the SAE J2534 industry standard, "Recommended Practice for Pass-Thru Vehicle Programming."⁸ Heavy-duty manufacturers have stated that their segment of the industry has developed its own standard (TMC Recommended Practice RP1210A, "Windows™ Communication API") for reprogramming, and that any requirement for standardized reprogramming of heavy-duty vehicles should be based on this standard. The ARB staff agrees that there is no need for the reprogramming standards for the light- and heavy-duty vehicle fleets to be the same since the vehicles are typically not serviced at the same location. Further, the RP1210A standard is already in use and familiar to the heavy-duty service industry. Therefore, the staff is proposing that the heavy-duty reprogramming standard be incorporated by reference in the regulation for use by heavy-duty manufacturers. For the same reasons, the staff is also proposing that heavy-duty manufacturers be permitted to use the terms and acronyms specified in SAE J2403, "Medium/Heavy-Duty E/E Systems Diagnosis Nomenclature," for heavy-duty service literature instead of SAE J1930, which specifies terms and acronyms for light- and medium-duty service information.

ARB staff's proposal would require direct access to heavy-duty service information over the Internet, as is presently required for light- and medium-duty vehicle classes currently covered by the regulation. Staff believes the advantages offered by online access (i.e., quick and convenient access) are beneficial and desired by independent heavy-duty service providers and parts makers. Further, such online access to service information is specifically required by SB 1146.⁹ Some heavy-duty engine and transmission manufacturers already offer direct online access to at least portions of their service information and others offer the ability to order service publications online.¹⁰ Current provisions for small-volume exemptions from full Internet compliance would also be extended to heavy-duty engine and transmission manufacturers selling on average less than 300 units annually in California.

Costs associated with the staff's proposal for heavy-duty vehicles are discussed in section VI.(C).(2.) of this staff report.

C. Other Amendments

Other minor amendments are proposed by the staff to harmonize the ARB's regulation with federal service information requirements and to assist the ARB in the implementation and enforcement of its own regulation. The more significant

⁸ Title 13, CCR, Section 1969(f)(3)

⁹ Health and Safety Code Section 43105.5(a)(1)

¹⁰ Examples include Detroit Diesel (www.detroitdiesel.com/public/ddc_cust/ddc_cust.asp), Mack (www.macktrucks.com), and Allison Transmissions (www.allisontransmission.com/service)

amendments are summarized below. All proposed amendments are indicated in the draft regulatory language in the attachment to this report.

1. Monitor Specific Drive Cycles

The existing service information regulation in title 13, CCR, section 1969(d)(2)(C) requires motor vehicle manufacturers to provide descriptions of typical enabling criteria for OBD monitors. The staff is proposing an amendment that would also require manufacturers to provide monitor-specific OBD drive cycle information, when available, for all major OBD diagnostic strategies. The information will help technicians verify repair work by exercising the OBD system during a test drive. Based on input from technicians, the staff believes that both types of information, when available, are needed. Verification of repair work before a vehicle is released to the owner maximizes the emission benefits of the work and increases public confidence in the effectiveness of the OBD system. Depending on the equipment used by the technician and the types of streets that surround the service facility, one type of OBD monitor information may be more useful than the other. The U.S. EPA's service information rule requires both types of information to be provided when available.

2. Emergency Maintenance

In Mail-Out MSO #2003-03, the staff proposed to add language to title 13, CCR, section 1969(e)(2)(A) requiring manufacturers to notify the Executive officer if emergency maintenance becomes necessary. The requirement would allow the ARB to monitor the nature and expected timeframe of the maintenance and to field inquiries about it. Manufacturers were concerned with the proposal because some manufacturers have global servers located outside of the U.S., making immediate notification for emergency maintenance difficult. Manufacturers also feared that the ARB might unreasonably impose penalties on manufacturers because of the amendment. Questions as to what constitutes emergency maintenance and whether notification would benefit independent technicians were also raised. The industry submitted suggested regulatory language that addresses manufacturers' concerns but still provides the ARB with reasonable notification of significant website downtime. The staff concluded that the suggested language is acceptable and has incorporated it into its proposal. Under the revised language, manufacturers would notify the ARB within one business day if their websites are not available for more than 24 hours for reasons besides routine maintenance.

3. Definition of "Fair, Reasonable, and Nondiscriminatory Price"

The existing definition of "fair, reasonable, and nondiscriminatory price" in title 13, CCR, section 1969(c)(10)(I) includes a factor that considers additional criteria that the U.S. EPA may use for evaluating service information and tool costs. It was included to account for differences in the federal and California requirements for pricing that were present when the ARB proposed its original regulation in 2001. However, with the federal rulemaking now finalized with pricing factors identical to

those of California's, the staff proposes to delete the factor from the state's regulation.

D. Differences Between Federal and California Regulations

The ARB has worked with the U.S. EPA to ensure general consistency between state and federal service information requirements. Except for the inclusion of heavy-duty vehicles into California's requirements, the amendments proposed by the staff will further improve consistency between the two regulations. With the proposed amendment for heavy-duty vehicles, the ARB's regulation would be broader in scope than the federal regulation. However, no conflicts between state and federal requirements would be created.

VI. Air Quality, Environmental and Economic Impacts

A. Air Quality and Environmental Impacts

The proposed regulation will have a positive impact on air quality by providing independent heavy-duty service facilities with the tools and information necessary to effectively diagnose and repair emission-related malfunctions. However, instead of creating new emission reductions, the proposed regulation will help ensure that the emission benefits attributed to California's heavy-duty emissions standards and future heavy-duty OBD requirements will be fully realized. This benefit is based on the belief that the availability of convenient and reasonably priced service will cause owners to be more likely to service their vehicles when malfunctions occur. The widespread availability of service information will also allow for more accurate repair work. For reference, the ARB has estimated the emission reductions of NOx and particulate matter (PM) statewide for ARB's 2007 heavy-duty emission standards to be 48.0 and 2.7 tons per day, respectively, by the year 2010.¹¹

B. Environmental Justice

State law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies (Senate Bill 115, Solis; Stats 1999, Ch. 690; Government Code § 65040.12(c)). The Board has established a framework for incorporating environmental justice into the ARB's programs consistent with the directives of State law. The policies developed apply to all communities in California, but recognize that environmental justice issues have been raised more in the context of low income and minority communities, which sometimes experience higher exposures to some pollutants as a result of the cumulative impacts of air pollution from multiple mobile, commercial, industrial, areawide, and other sources.

¹¹ Source: ARB Staff Report: Initial Statement of Reasons, Public Hearing to Consider Amendments Adopting More Stringent Emission Standards for 2007 and Subsequent Model Year Heavy-Duty Diesel Engines, September 7, 2001.

Over the past twenty years, the ARB, local air districts, and federal air pollution control programs have made substantial progress towards improving the air quality in California. However, some communities continue to experience higher exposures than others as a result of the cumulative impacts of air pollution from multiple mobile and stationary sources and thus may suffer a disproportionate level of adverse health effects.

Since the same ambient air quality standards for heavy-duty vehicles apply to all regions of the State, all communities, including environmental justice communities, will benefit from the air quality benefits associated with the proposal. To the extent that heavy-duty truck operation is higher near certain communities, these communities will receive a greater benefit from a well maintained California fleet.

C. Economic Impacts

The Administrative Procedures Act requires in proposing to adopt or amend any administrative regulation that state agencies shall assess the potential for adverse economic impacts on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states, and fiscal impacts on state and local agencies. Below is staff's assessment of the economic impacts of this proposal.

1. Cost to State Agencies

When originally adopted, the ARB estimated that it would incur ongoing costs of up to \$200,000 annually to implement and enforce the service information regulation. Additionally, through 2009, the Department of Consumer Affairs will be required by Health and Safety Code section 43105.5(g), in conjunction with the ARB, to report to the State Legislature annually on the effectiveness of the regulation. The estimated cost to the Department of Consumer Affairs is not expected to exceed \$75,000 per year. The staff believes that no significant additional ARB resources will be required as a result of the amendments it has proposed. The proposed regulation is not expected to create additional costs to any other state agency, local district, or school district, including any federally funded state agency or program.

2. Costs to Engine and Motor Vehicle Manufacturers

When ARB's service information requirements were first adopted in 2001, light and medium-duty manufacturers estimated that start up costs would be between \$600,000 to \$5 million. Ongoing costs were estimated at \$150,000 to \$450,000. The ARB staff estimates that both start-up and ongoing costs will be substantially less for heavy-duty manufacturers.

ARB staff does not believe that start-up costs for heavy-duty manufacturers should exceed \$500,000. Because the regulation applies to manufacturers of all 1994 and later OBD-equipped vehicles, light- and medium-duty

vehicle manufacturers were required to revise up to nine model years of existing service information for web access. Heavy-duty engine and transmission manufacturers will not need to address internet-based service information access for any models prior to the 2007 model year. Further, heavy-duty engine and transmission manufacturers have a smaller number of product offerings, compared to most light and medium-duty vehicle manufacturers. Therefore, hardware costs for development computers and Internet servers are also expected to be less.

Regarding ongoing costs, fewer product offerings should also lower heavy-duty manufacturers' ongoing service information access costs compared to light- and medium-duty vehicles. The staff estimates that on-going costs should not exceed \$225,000 per year. These cost estimates are generally consistent with limited cost data provided by heavy-duty engine manufacturers. The estimates do not take into account any revenue from online subscriptions or document purchases. Manufacturers are permitted to set reasonable prices for information access.

3. Potential Impacts on Other Businesses

The regulations should have a positive impact on independent service repair facilities and aftermarket manufacturers through the wider availability of emission-related service information and tools. Covered persons should only incur additional expenses as a result of this regulation if they choose to purchase additional information and tools. However, in doing so, it is assumed that the purchases will be based on business decisions wherein the use of the information would be expected to yield a profit. The cost of purchasing such information under the proposal should be equal to or less than the current costs for the aftermarket heavy-duty service industry.

Franchised heavy-duty truck dealerships and manufacturer service networks may experience some loss of business as independent facilities conduct more repairs using the service information that would be provided by this rulemaking. However, this stimulation of competition in the service and repair industry was in fact the goal of SB 1146 and thus, such an effect was clearly recognized by the California Legislature when the bill was drafted.

4. Potential Impact on Business Competitiveness

The proposed regulation is expected to have no net effect on the ability of California businesses to compete with businesses in other states. Adoption of the regulations would allow California independent service facilities to compete more evenly with manufacturer dealerships and service networks within the state as they will be able to access the same types of repair information. Since, for the most part, the competition between the aftermarket and franchised dealerships/service networks is of an intrastate origin, the regulation should have no effect on the ability of California businesses to compete with businesses in other states.

5. Potential Impact on Employment

The regulatory proposal would not likely result in the loss of jobs. In fact, it may create some jobs in California. Engine and vehicle manufacturers may have a new need for skilled employees that are capable of designing, creating, and maintaining service information websites. Further, although some business may move from dealerships to independent service providers, the staff does not expect any overall reduction in engine or vehicle repair work, and thus, no reduction in California jobs. To the extent that more competition in the service industry is achieved, lower prices and better service could offer an incentive for more vehicle owners to seek repairs, possibly resulting in increased employment.

D. Regulatory Alternatives

1. Maintain Existing Service Information Regulation

Staff rejected this alternative because the Health and Safety Code mandate that the availability of emission-related service information be required for all 1994 model year and later vehicles equipped with OBD systems. Adoption of requirements at this time for heavy-duty vehicles will ensure that adequate service information is available once OBD requirements for these vehicles take effect.

The other proposed amendments are minor yet necessary to clarify regulatory language that is unclear and to assist the ARB in harmonizing its provisions with those of the U.S. EPA. They also assist the ARB in enforcing its own regulation. Therefore, their inclusion is necessary to maximize the effectiveness of the regulation.

2. Adopt Federal Service Information Regulations

Adoption of the federal requirements would not fully address the responsibilities placed on the ARB by the California Legislature and SB 1146. SB 1146 specifically charged the ARB to develop its own service information regulation for California, with specific enforcement and reporting activities related to the service information regulation. These activities include issuance of notices to comply, participation in administrative hearings, and yearly reports to the legislature. The statute does not permit the ARB to consider relying on federal efforts to enforce U.S. EPA service information requirements.

Additionally, the U.S. EPA's service information regulation only applies to vehicles under 14,000 pounds GVWR and covers only the aftermarket service industry, and not parts manufacturers. Therefore, California-certified, heavy-duty vehicles and aftermarket parts manufacturers would not be covered if the state were to rely on the federal requirements.

3. Conclusion

Staff has determined that no feasible alternative considered would be more effective in carrying out the purpose of the proposed amendments. No alternative would be as effective or less burdensome to affected private persons than the proposed amendments to the regulation.

VII. Summary and Staff Recommendation

The staff's proposal is necessary and required under SB 1146 to ensure wide access to emission-related service information and diagnostic tools for future heavy-duty vehicles equipped with OBD systems. The amendments in this proposal will create a suitable environment for independent businesses in California to compete with engine and vehicle manufacturers and their dealerships or service networks for consumers' business when it comes to the repair of their vehicles. The widespread availability of emission-related service information to all service repair facilities would ensure that repair work is accurate, thorough, and complete, thereby providing all California citizens with the air quality benefits associated with properly maintained vehicles. Aftermarket parts manufacturers will also be able to use the required information to produce components that will work compatibly with the advanced emission control systems of today's cars and trucks.

The regulation duly provides for the disclosure of service information as envisioned by the State Legislature when SB 1146 was signed into law. Consequently, staff recommends that the Board adopt the proposed amendments to the service information regulations as outlined in title 13, CCR, section 1969.

VIII. References

AE, "Recommended Practice for a Serial Control and Communications Vehicle Network," J1939, April 2000.

SAE, "Medium/Heavy-Duty E/E Systems Diagnosis Nomenclature," J2403, October 1998.

The Maintenance Council, Recommended Practice RP1210A, "Windows™ Communication API," July 1999.

"Staff Report: Initial Statement of Reasons, Public Hearing to Consider Amendments Adopting More Stringent Emission Standards for 2007 and Subsequent Model Year Heavy-Duty Diesel Engines," Air Resources Board, September 7, 2001.

"Draft Preliminary Staff Report: Initial Statement of Reasons, Technical Status and Diagnostic System Requirements for 2007 and Subsequent Model Year Heavy-Duty Vehicles and Engines," Air Resources Board, July 25, 2003.

“Staff Report: Initial Statement of Reasons, Public Hearing to Consider Adoption of California Regulations for Motor Vehicle Service Information,” Air Resources Board, October 26, 2001.

“California Motor Vehicle Service Information Rulemaking Status (Agenda Item No. 01-10-1): Immobilizers,” Air Resources Board Memorandum, November 13, 2002.

Mail-Out MSO #2003-03, “Proposed Amendments to the California Motor Vehicle Service information Rulemaking,” Air Resources Board, July 7, 2003.

Final Rulemaking, “Control of Air Pollution From New Motor Vehicles and New Motor Vehicle Engines; Revisions to Regulations Requiring Availability of Information for Use of On-Board Diagnostic Systems and Emission-Related Repairs on 1994 and Later Model Year Light-Duty Vehicles and Light-Duty Trucks and 2005 and Later Model Year Heavy-Duty Vehicles and Weighing 14,000 Pound Gross Vehicle Weight or Less.” Federal Register, June 27, 2003.

Senate Bill 1146: Motor Vehicles: Pollution Control Devices, authored by State Senator John Burton; approved by Governor Gray Davis September 30, 2000.

“1997 United States Economic Census,” U.S. Census Bureau.

“2000 Heavy Duty Aftermarket Profile,” Automotive Aftermarket Industry Association.

“2001 Aftermarket Factbook,” Automotive Aftermarket Industry Association.

Title 13, California Code of Regulations, section 1968.1.

Title 13, California Code of Regulations, section 1968.2.

Title 13, California Code of Regulations, section 1969.

Title 17, California Code of Regulation, sections 60060.1 through 60060.34

August 6, 2003, letter from the Automotive Aftermarket Industry Association and the Automotive Parts Rebuilders Association.

August 13, 2003, letter from Allison Transmission.

August 14, 2003, Position Paper submitted from the Alliance of Automobile Manufacturers and the Association of International Automobile Manufacturers.

August 28, 2003, e-mail from Mr. Robert Braswell of the Technology and Maintenance Council. (Attached survey marked confidential.)

September 30, 2003, letter from the Alliance of Automobile Manufacturers and the Association of International Automobile Manufacturers.